REMARKS

Claims 2, and 4-9 are pending

I. The 112 rejections are respectfully traversed.

In independent claims 2 and 9, the language "regulation to a constant value" stands rejected under 112, first paragraph. Applicant respectfully points out the disclosure at page 6, lines 13-15, of the specification which specifically supports said language, and the discussion below regarding amendments. Therefore, the rejection is respectfully believed to be traversed.

Additionally, in claim 9, the driving of the AOTF "by a constant frequency" is alleged to not be disclosed by the specification. Applicant respectfully points out the disclosure at page 2, lines 15-24 wherein it is discussed that the AOTF frequency can advantageously be controlled by driving the AOTF by means of a driver interface dependent on temperature, and that an automatic frequency readjustment is carried out within a given frequency window ... by the frequency determined at the reference value (temperature). Also, at page 6, lines 1-5, it is discussed that the driving AOTF frequency is adjusted based upon temperature, that is it compensates for the frequency shift occurring as a result of the temperature deviation by increasing or decreasing frequency.

Therefore, claim 2 has been amended accordingly. No new matter has been added.

Further, applicant believes that in claim 9, the claim language "constant frequency" should be amended to read "wherein said AOTF is driven by an optimized AOTF frequency to provide a constant laser output in the first order of diffraction." Said amendment is performed herein and is

supported at least at page 6, lines 16-20. Therefore, the 112, first paragraph, rejection is believed to be overcome.

Additionally, claims 2 and 9 are rejected for not being clear as to which parameter is being regulated to a constant value. Therefore, applicant makes it clear the temperature of the AOTF is regulated to a constant value(see page 6, lines 13-15). Therefore, the rejection is respectfully overcome.

Claim 6 has been cancelled. Therefore, the rejection of claim 6 is overcome.

Claim 7 claims an electronic control *per se* and is believed to be clear.

Therefore, all of the 112 rejections are believed to be traversed.

II. The obviousness rejections

In regard to Kemeny et al. applicant emphasizes the following points as discussed further below in detail:

1. Kemeny uses purposeful changes in temperature so that the spectral range can be varied, and the temperature is therefore not kept constant as in claimed in present invention.

2. No cooler means is disclosed by Kemeny.

A significant difference is that Kemeny irradiates the AOTF with a white light source and selects a certain spectral range (wavelength) with the applied AOTF frequency. It is decisive for the Kenemy application that the spectral range of the working beam is changed via the frequency

change. Therefore, frequency stability by means of temperature control is required so that the spectral range can be **varied through purposeful changes of temperature.**

In a Laser Scanning Microscope, as opposed to the spectrometer of Kemeny, the AOTF is used to make collinearly superimposed laser lines with a bandwidth in the sub-nanometer range individually accessible, meaning that essentially narrow spectral ranges can be selected. Since even closely adjacent laser lines are at least 8nm apart, a frequency change of the AOTF (done by changes of the environmental temperature which are sensible within the framework of the housing specifications) changes the spectral information (wavelength) in no way, only the intensity of the laser radiation of the first diffraction order.

Since the detected signal in, for example, fluorescent microscopy directly depends on the irradiated laser power, a constant excitation intensity is of great importance. If it drops, the detected signal (interaction with the object/fluorescent molecule) drops. Important information about properties of the examined biological sample can also be gained from the signal strength (for example, the concentration of certain ions (Ca++) during so-called ratio measurements, or the pH-value). In the examination of surface structures (confocal material microscopy), the detected intensity is an indication of the height of a structure. This means that a height profile can be determined from the intensity curve.

From this can be gathered that in a LSM the frequency stability of an AOTF is of a great importance so that (opposite to what is done by Kemeny) the intensity of the excitation light is kept constant and the temperature of the AOTF is adjusted to keep constant.

Also, it is reiterated that no "cooling means" as claimed are disclosed by Kemeny. In the past Office Action dated 10/19/2000, paper no.6, it was sated at page 4 that "The prior art and Kemeny do not explicitly disclose a temperature control including a cooler." Therefore, additional references were cited, i.e., Fay etc. Now those references have been withdrawn, and no new references have been cited.

Therefore, the rejection does not show where in Kemeny or the prior art that cooling means are taught or suggested as is required by 35 USC 103. The rejection states that cooling is achieved by shutting off the heater, however cooling means are not taught or suggested by apparatus which are not physically embodied in the reference because apparatus "means" is always a physical embodiment *per se* by definition.

III. Given the above reasons a *prima facie* case of obviousness as required for a combination of references under 35 USC 103 and as described in detail at MPEP 706.02(j) has not been established by the reasoning at pages 3-6 of the Office Action

Therefore, the rejection at pages 3 through 6 of the Office Action of claims 2 and 4-9 and respectfully does not meet the standards for establishing a *prima facie* case of obviousness as required by 35 U.S.C. section 103 and as described in detail at MPEP 706.02(j) which is discussed in detail below.

In order to establish a *prima facie* case of obviousness according to section 706.02(j) of the Manual of Patent Examining Procedure (MPEP) the following criteria must be met:

The MPEP Standard for Combining/Modifying References

The Manual of Patent Examining Procedure, section 706.02(j) sets forth the standard for combining and/or modifying prior art, and states:

> To establish a *prima facie* case of obviousness, three basic criteria must be met. **First**, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. **Second**, there must be a reasonable expectation of success. **Finally**, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria. [Bold emphasis provided.]

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the

references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). See MPEP § 2144 - § 2144.09 for examples of reasoning supporting obviousness rejections.

The First Criteria: Motivation to Combine/Modify

The first criteria of the Manual of Patent Examining Procedure, section 706.02(j) requires that the reasoning on pages 3 through 5 of the Office Action point to some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings.

The reasoning at pages 3 through 5 of the Office Action sets forth the teaching of the references: The Admitted Prior Art and Kemeny in combination and concludes at page 4 that it would have been obvious to one of ordinary skill in the art to "add a temperature sensor , a heater and a heater regulator, as taught by Kemeny to the device taught in the prior art in order to be able to provide corrections for varaitios in the temperature of the AOTF as suggested by Kemeny." However as noted above in the individual discussion of each reference, none of the references teach or suggest limitations of independent claims 2 or 9.

In summary of the above, this is because the cited Prior Art and Kemney are admitted not to disclose an cooler structure and also they do not focus on keeping the temperature constant. Therefore, Fay was previously cited for disclosing a cooler, but Fay is no onger cited and no new reference is cited.

Therefore, none of the references teach or suggest all of the limitations of claim 2 or 9 as required by 35 USC 103. Therefore, at this time it, is respectfully asserted that there is no teaching or suggestion on the record of why it would have been obvious at the time of the invention for a person having ordinary skill in the art to view two references and then to develop the invention as claimed in independent claims 2 or 9 as discussed above. Rather, a hindsight analysis would be required. Therefore, the first criteria of section 706.02(j) of the Manual of Patent Examining Procedure is respectfully not met by the reasoning presented at pages 3 through 6 of the Office Action in regard to independent claims 2 and 9.

The Second Criteria: Reasonable Expectation of Success

The second criteria of the Manual of Patent Examining Procedure, section 706.02(j) states that there must be a reasonable expectation of success to incorporate the alleged cooler feature of into the admitted Prior Art and Kemney. However, as it has been noted above, that no actual disclosure, teaching or suggestion of the limitations of independent claims 2 or 9 is taught by any of the two references taken alone or in combination, it is respectfully asserted that no reasonable expectation of success can be based on a teaching that does not exist in the references. Therefore, the second criteria of MPEP, section 706.02(j) is also respectfully not met by the reasoning presented of pages 3 through 6 of the Office Action.

The third limitation of MPEP 706.02(j) requires that the prior art references when combined must teach or suggest all the claimed limitations. As discussed above, it is respectfully asserted the specific limitations of independent claims 2 and 9 are not taught or suggested or even disclosed by any of the two cited references when taken alone or together .

Therefore, in summary, it is respectfully asserted that the above discussion clearly shows that the criteria for establishing a *prima facie* case of obviousness as required by 35 U.S.C. section 103, and as described in detail at MPEP section 706.02(j), have not been met. Therefore, it is respectfully requested that independent base claims 2 and 9 be reconsidered and allowed.

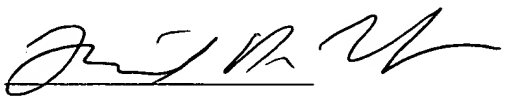
Claims 4-8 depend from independent base claim 2, and are therefore also believed to be allowable. Thus, reconsideration and allowance of all of the claims is respectfully requested.

IV. Conclusion

In light of the *FESTO* case, no claim amendment or argument made herein was related to the statutory requirements of patentability unless expressly stated herein. No claim amendment or argument made was for the purpose of narrowing the scope of any claim unless Applicant has explicitly stated that the argument is "narrowing."

Therefore, reconsideration of all of the claims is respectfully requested.

Respectfully submitted,



Reed, Smith LLP
375 Park Avenue, 17th Floor
New York, New York 10152
(212) 521.5449

Daniel P. Lent
Reg. No. 44,867
Attorney for Applicant

MARKED-UP CLAIMS

Please cancel claim 6.

2. (Twice Amended) In a laser scanning microscope with an AOTF (acousto-optic tunable filter) in the laser input-coupling beam path, an improvement comprising:

a temperature gauge being provided in one of the environment of the AOTF and the vicinity thereof and connected therewith;

means for one of cooling and heating [at least one] of the AOTF and its environment; and

wherein said means for one of heating and cooling includes regulation of said AOTF and its environment to a constant temperature value.

7. (Once Amended) The laser scanning microscope according to claim [6] 2, wherein the temperature gauge is connected to one of heating and cooling means by an electronic control for regulating the temperature.

9. (Once Amended) In a laser scanning microscope with an AOTF (acousto-optic tunable filter) in the laser input-coupling beam path, an improvement comprising:

a temperature gauge being provided in one of the environment of the AOTF and the vicinity thereof and connected therewith;

means for one of cooling and heating at least one of the AOTF and its environment; and

wherein said means for one of heating and cooling includes regulation of said at least one of the AOTF and its environment to a constant temperature value and [said AOTF is driven by a constant frequency] wherein said AOTF is driven by an optimized AOTF frequency to provide a constant laser output in the first order of diffraction.